WHAT IS CLAIMED IS:

1. An apparatus for determining tissue characteristics, comprising:

a base unit comprising illumination, detection and control sub-units, the illumination sub-unit providing illumination optical energy for illuminating a target tissue and the detection sub-unit detecting tissue characteristics of a target tissue;

a separate tissue interface unit; and

a pathway coupling the base unit and the tissue interface unit.

2. The apparatus according to claim 1, wherein the pathway is configured to deliver optical energy from the base unit to the tissue interface unit and to deliver collected optical energy reflected and/or emitted by the target tissue from the tissue interface unit to the base unit.

3. The apparatus according to claim 2, wherein the pathway comprises an illumination pathway and a collection pathway, wherein the illumination pathway is configured to deliver optical energy from the base unit to the tissue interface unit and the collection pathway is configured to deliver collected optical energy reflected and/or emitted by a target tissue from the tissue interface unit to the base unit.

4. The apparatus according to claim 1, wherein the tissue interface unit comprises a tube having a pathway configured to deliver optical energy received from the base unit to a target tissue and to receive collected optical energy reflected and/or emitted by the target tissue.

5. The apparatus according to claim 4, wherein the tube pathway comprises an illumination pathway and a collection pathway, wherein the illumination pathway is configured to deliver optical energy received from the base unit to the target tissue and the collection pathway is configured to receive collected optical energy reflected and/or emitted by the tissue.

6. The apparatus according to claim 5, wherein the illumination pathway and collection pathway comprise at least one optical fiber.

7. The apparatus according to claim 4, wherein the tissue interface unit further comprises an illumination source and a second illumination pathway configured to deliver illumination optical energy from the illumination source of the tissue interface unit to the target tissue.

8. The apparatus according to claim 7, further comprising an imaging device and an image pathway configured to deliver image optical energy reflected off the target tissue to the imaging device.

9. The apparatus according to claim 8, wherein the imaging device is a camera.

10. The apparatus according to claim 4, wherein the tissue interface unit comprises a base structure, the tube being configured to be attachable to the base structure.

11. The apparatus according to claim 10, wherein the base structure comprises a handle.

12. The apparatus according to claim 10, wherein the tube is disposable.

13. The apparatus according to claim 1, wherein the base unit comprises a movable cart.

14. The apparatus according to claim 1, wherein the illumination sub-unit comprises an illumination source and an illumination filter wheel.

15. The apparatus according to claim 14, wherein the illumination sub-unit further comprises a cold mirror coupled to the illumination source and the illumination filter wheel.

16. The apparatus according to claim 14, wherein the illumination sub-unit further comprises a lens coupled to the illumination source and the illumination filter wheel.

17. The apparatus according to claim 14, wherein the illumination sub-unit further comprises a shutter configured to selectively prevent illumination optical energy from entering the pathway that couples the base unit and the tissue interface unit.

18. The apparatus according to claim 14, wherein the pathway that couples the base unit and the tissue interface unit is comprised of a plurality of optical fibers.

19. The apparatus according to claim 18, wherein the illumination unit further comprises a mask that provides for selective illumination of the target tissue.

20. The apparatus according to claim 1, wherein the detection sub-unit comprises a collection filter wheel coupled to the pathway that couples the base unit and the tissue interface unit.

21. The apparatus according to claim 20, wherein the detection sub-unit further comprises a spectrograph coupled to the collection filter wheel.

22. The apparatus according to claim 21, wherein the detection sub-unit further comprises a reimaging device coupled to the collection filter wheel and the spectrograph that reimages the collected optical energy prior to the collected optical energy entering the spectrograph.

23. The apparatus according to claim 21, wherein the detection sub-unit further comprises a camera coupled to the spectrograph, wherein the camera receives the collection optical energy from the spectrograph and displays an image of the target tissue indicative of tissue characteristics.

24. A tissue interface unit for use in an apparatus for determining tissue characteristics, comprising:

a tube;

a first pathway in optical communication with the tube and configured to deliver optical energy received from a base unit to a target tissue and to receive collected optical energy reflected and/or emitted by the target tissue;

an illumination source; and

a second pathway in optical communication with the tube and configured to deliver illumination optical energy from the illumination source to the target tissue.

25. The apparatus according to claim 24, further comprising:

an imaging device; and

a third pathway configured to deliver optical energy reflected from the target tissue to the imaging device.

26. The apparatus according to claim 25, wherein the imaging device is a camera.

27. The apparatus according to claim 24, wherein the first pathway comprises an illumination pathway and a collection pathway, wherein the illumination pathway is configured to deliver optical energy received from the base unit to the target tissue and the collection pathway is configured to receive collected optical energy reflected and/or emitted by the target tissue.

28. The apparatus according to claim 24, further comprising:

a base unit to which the tube is attached.

29. The apparatus according to claim 28, wherein base unit comprises a handle.

30. The apparatus according to claim 28, wherein the tube is disposable.

31. A method of detecting tissue characteristics, comprising:

illuminating a first portion of a target tissue with optical energy;

forming a first image of the target tissue;

illuminating a second portion of the target tissue with optical energy;

performing spectroscopic measurements on optical energy reflected and/or emitted by the target tissue upon illumination of the second portion of the target tissue with optical energy; and

determining tissue characteristics of the target tissue based on the results of the spectroscopic measurements.

32. The method of claim 31, further comprising:

forming a second image of the target tissue using the results of the spectroscopic measurements.

33. The method of claim 31, wherein illuminating a first portion of a target tissue with optical energy comprises illuminating a first portion of a target tissue with optical energy from a first illumination source and illuminating a second portion of the target tissue with optical energy comprises illuminating a second portion of the target tissue with optical energy with a second illumination source.

34. The method of claim 33, further comprising:

forming a second image of the target tissue using the optical energy reflected and/or emitted by the target tissue upon illumination with the optical energy from the second illumination source.

35. The method of claim 31, further comprising:

determining the second portion of the target tissue based on the first image.

36. The method of claim 34, wherein the first portion and the second portion overlap the same portion of the target tissue.

37. The method of claim 31, wherein illuminating a first portion of a target tissue with optical energy and illuminating a second portion of the target tissue with optical energy both comprise flood illuminating the respective portion of the target tissue.

38. The method of claim 31, wherein illuminating a first portion of a target tissue with optical energy comprises flood illuminating the first portion of the target tissue, and wherein the second portion of the target tissue is divided into a plurality of detection points arranged in columns and illuminating a second portion of the target tissue with optical energy comprises illuminating the plurality of detection points one column at a time.

39. A method of detecting tissue characteristics, comprising:

dividing an area of target tissue into a plurality of detection points arranged in columns;

illuminating the plurality of detection points one column at a time;

performing spectroscopic measurements on optical energy reflected and/or emitted by the target tissue; and

determining tissue characteristics of the target tissue based on the results of the spectroscopic measurements.

40. The method of claim 39, wherein the target tissue is a cervix of a patient.

41. The method of claim 39, wherein the plurality of detection points cover substantially the entire cervix.

42. The method of claim 39, wherein the plurality of detection points cover an area of approximately 25 mm in diameter.

43. The method of claim 39, wherein the plurality of detection points comprise detection points having a diameter of approximately 0.5 mm.

44. The method of claim 43, wherein the plurality of detection points are separated from each other by approximately 3 mm.

45. The method of claim 39, wherein the plurality of detection points are illuminated using a probe positioned a predetermined distance from the target tissue.

46. The method according to claim 45, wherein the predetermined distance is approximately 175 mm.

47. An apparatus for determining tissue characteristics, comprising:

a tissue interface unit configured to perform spectroscopic measurements on a target tissue;

a docking unit configured to support the tissue interface unit when not in use, the docking unit comprising an illumination source and a processor that processes spectrographic measurement results received from the tissue interface unit; and

a pathway coupling the docking unit and the tissue interface unit.

48. The apparatus according to claim 47, wherein the pathway is configured to deliver illumination optical energy from the docking unit to the tissue interface unit and to deliver the spectroscopic measurement results from the tissue interface unit to the docking unit.

49. The apparatus according to claim 48, wherein the pathway comprises one or more optical fiber.

50. The apparatus according to claim 47, wherein the tissue interface unit comprises a tube having a pathway that delivers optical energy received

from the docking unit to a target tissue and that receives collected optical energy reflected and/or emitted by the target tissue.

51. The apparatus according to claim 50, wherein the tube pathway comprises an illumination pathway and a collection pathway, wherein the illumination pathway delivers optical energy received from the docking unit to the target tissue and the collection pathway receives collected optical energy reflected and/or emitted by the tissue.

52. The apparatus according to claim 51, wherein the illumination pathway comprise one or more optical fiber.

53. The apparatus according to claim 51, wherein the illumination pathway comprises a light guide configured to deliver optical energy received from the docking unit to the target tissue via the tube and pathway.

54. The apparatus according to claim 51, wherein the tissue interface unit comprises a device configured to perform spectroscopic measurements on a target tissue, the device being in communication with the collection pathway and comprising a diffraction grating, a camera and a camera controller.

55. The apparatus according to claim 47, further comprising an imaging device and an image pathway configured to deliver image optical energy reflected off the target tissue to the imaging device.

56. The apparatus according to claim 47, wherein the tissue interface unit comprises a base structure, the tube being configured to be attachable to the base structure.

57. The apparatus according to claim 56, wherein the base structure comprises a handle.

58. The apparatus according to claim 57, wherein the tube is disposable.

59. The apparatus according to claim 47, further comprising a system interface and controller that controls the exchange of signals between the tissue interface unit and the docking unit.

60. The apparatus according to claim 55, further comprising a monitor in communication with the imaging device.

61. The apparatus according to claim 55, further comprising an image recording device in communication with the imaging device.

62. The apparatus according to claim 54, further comprising a shutter disposed adjacent to or within the collection pathway and configured to block illumination optical energy from entering the device configured to perform spectroscopic measurements when the device configured to perform spectroscopic measurements is not in use.

63. The apparatus according to claim 54, further comprising a filter disposed adjacent to or within the collection pathway and configured for selective filtering of wavelengths.